Note on an Error in Le Verrier's "Tables du Soleil."

By R. T. A. Innes.

There is a small error in Le Verrier's Tables of the Sun (*Les Annales*, vol. iv.) which, as far as I am aware, seems to have escaped detection.

In the expression for R on p. 103 the same variation of the excentricity is used as on p. 54, viz.:—

$$-0{\cdot}000{,}000{,}4338$$

instead of

$$-0{\cdot}000{,}000{,}4244$$

resulting from $-0''{\cdot}08755$ on p. 102.

In calculating R especially for a distant epoch it will be worth while to take this correction into account.

In vol. xl. p. 598 of the *Monthly Notices*, Sir G. B. Airy puts

$$\frac{\text{Variation of E for 1 year}}{\text{E}} = -\frac{{\cdot}0000004338}{{\cdot}01676927};$$

this should be

$$-\frac{{\cdot}0000004244}{{\cdot}01677106}.$$

This changes the value of the lunar acceleration from

$$5''{\cdot}4773 \text{ to } 5''{\cdot}3587.$$

The two following tables will enable the correction to be applied during the time covered by Le Verrier's Tables.

Le Verrier's Tables of the Sun. Section V. Table XXXII.

The seventh decimal place taken for unity.

Mean Anomaly.		Correction to Var. Séc. Natl. No.	Correction to Var. Séc. Logarm.	Mean Anomaly.	
0	360	−9·3+	−4·0+	180	180
5	355	−9·3+	−4·0+	175	185
10	350	−9·2+	−4·0+	170	190
15	345	−9·0+	−3·9+	165	195
20	340	−8·7+	−3·8+	160	200
25	335	−8·4+	−3·7+	155	205
30	330	−8·1+	−3·5+	150	210
35	325	−7·6+	−3·3+	145	215
40	320	−7·1+	−3·1+	140	220
45	315	−6·6+	−2·9+	135	225
50	310	−6·0+	−2·6+	130	230

Mean Anomaly.		Correction to Var. Séc. Natl. No.	Logarm.	Mean Anomaly.	
55	305	−5·3+	−2·3+	125	235
60	300	−4·6+	−2·0+	120	240
65	295	−3·9+	−1·7+	115	245
70	290	−3·2+	−1·4+	110	250
75	285	−2·4+	−1·1+	105	255
80	280	−1·6+	−0·7+	100	260
85	275	−0·8+	−0·3+	95	265
90	270	−0·0+	−0·0+	90	270

Section VI. Table II.

Correction to R.

Sun's Longitude.		1860.	1870.	1880.	1890.	1900.	Sun's Longitude.	
280	280	−0·9+	−1·9+	−2·8+	−3·7+	−4·6+	100	100
290	270	−0·9+	−1·8+	−2·8+	−3·7+	−4·6+	90	110
300	260	−0·9+	−1·7+	−2·6+	−3·5+	−4·3+	80	120
310	250	−0·8+	−1·6+	−2·4+	−3·2+	−4·0+	70	130
320	240	−0·7+	−1·4+	−2·3+	−2·8+	−3·5+	60	140
330	230	−0·6+	−1·2+	−2·0+	−2·4+	−3·0+	50	150
340	220	−0·5+	−0·9+	−1·6+	−1·8+	−2·3+	40	160
350	210	−0·3+	−0·6+	−1·2+	−1·3+	−1·6+	30	170
360	200	−0·2+	−0·3+	−0·5+	−0·6+	−0·8+	20	180
10	190	−0·0	−0·0+	−0·0+	−0·0+	−0·0+	10	190

Extract from a letter from Professor J. C. Adams to Mr. Knobel.

'Mr. Innes is quite right in pointing out that the variation of the excentricity in the expression of the radius vector does not agree with that given in the definitive value adopted for the equation of the centre. It really agrees with the value of the variation of the excentricity given in page 53, which is that which is consistent with the masses of the planets which are assumed in page 49. The correction of the annual variation of the excentricity is given in page 55, in terms of the corrections of the planetary masses. The values of $2\delta e$ which result from the observations, chiefly those of Greenwich, are given on page 89, and these indicate a smaller value of the variation of the excentricity than that employed in the original theory.'
